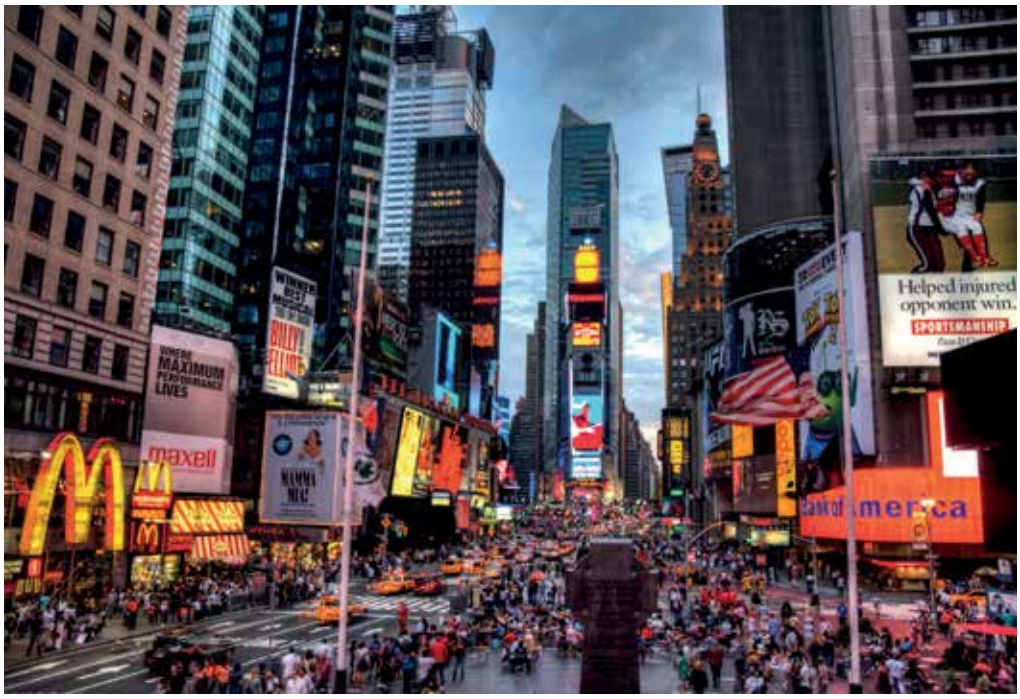
#wethecity 2

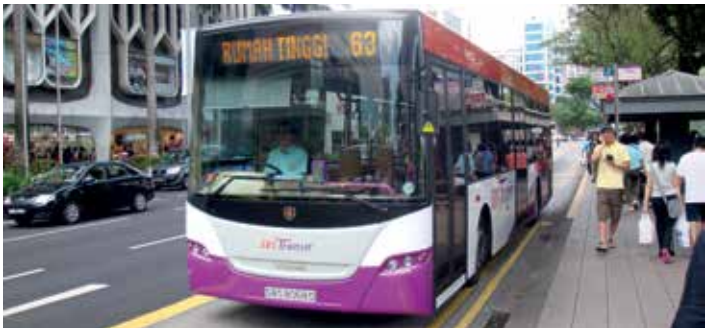
From Possibilities to Practice

The Committee for Sydney

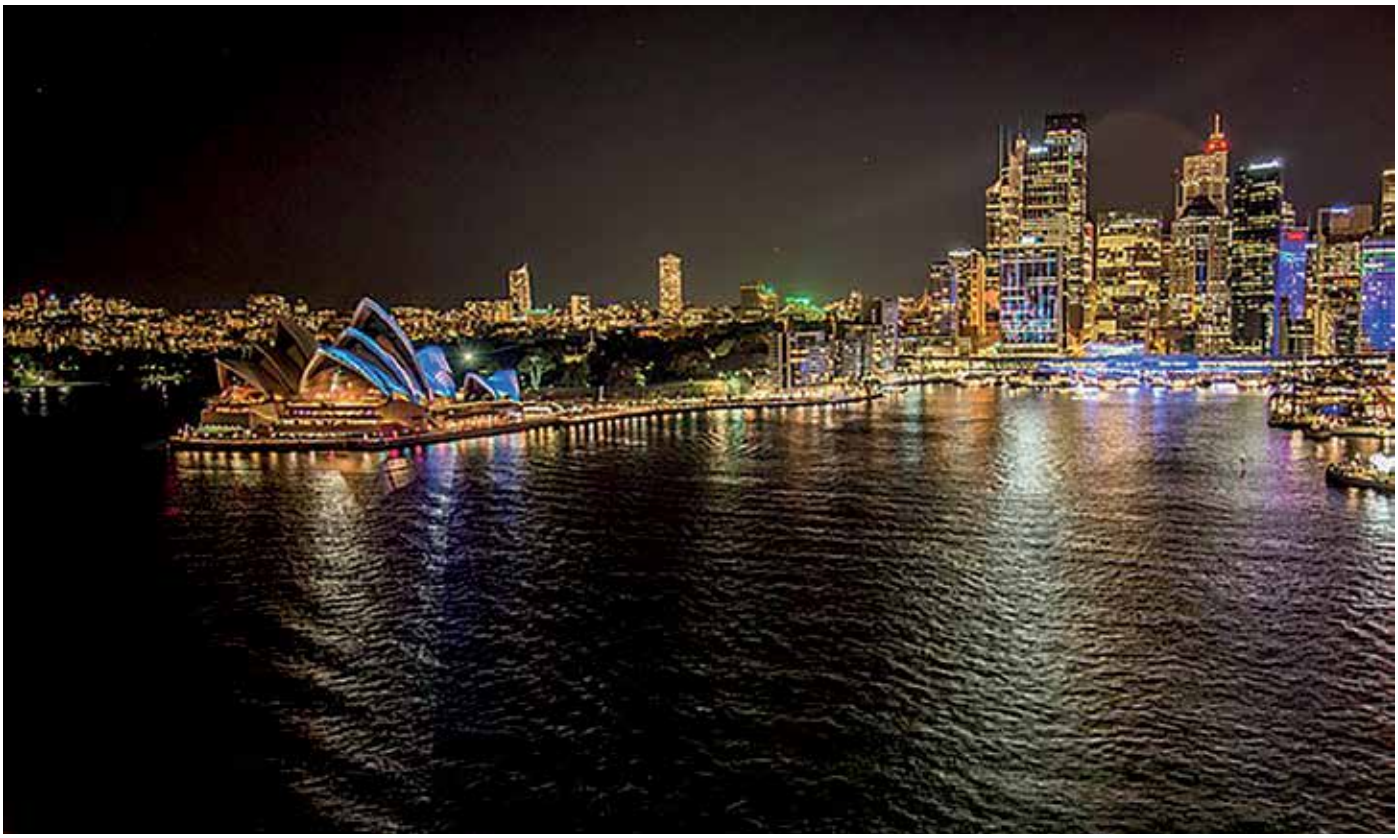
SYDNEY ISSUES PAPER NO. 10 – VOLUME 2

NOVEMBER 2015





INTRODUCTION



This volume of case studies has been prepared as a companion piece to the second paper in the Committee for Sydney's *#wethecity2* series, titled ***From Possibilities to Practice (November 2015)***

#wethecity2 (Volume 1) revisits the themes from the original paper, published in 2013, and looks at the way those ideas have become central to, and started to change, the "smart city" conversation and the focus on urban innovation more broadly.

In particular, the paper reinforces that cities in the digital era collaborate to compete and cities which compete best collaborate the most, across the public and private sectors, peer to peer, and across the community and voluntary sectors.

We argue that the real story of successful cities lies in the nature and quality of their urban conversations for better governance, for innovation and for more inclusive forms of engagement and mobilisation. How we talk and decide together tends to determine not just the quality of the decisions but their legitimacy and therefore their ability to influence how we want the city to grow and develop.

There are three persistent themes at the heart of the *#wethecity* framework:

- One is a commitment to a more **open and connected** city, one where people and ideas move freely and are widely and easily shared and combined for common cause.
- Another is a city that is **engaged and democratic**, where the idea of participation as the basis for good governance and rising trust is both accepted and lived.
- A third is the idea that, to paraphrase David Weinberger, the smartest person in the city is the city[1]; what matters is not what each of us know or can do, but the collective intelligence we can bring to bear by what each of us can know and do **better, together.**

The point of "we, the city" in the end is that making Sydney work better has to be all our own work and the work of us all.

1 http://www.toobigtoknow.com/

The arguments and recommendations in the paper are illustrated by a number of stories about what is happening in cities around the world, and across Australia – including, of course, Sydney itself – to put some of these ideas to work.

When we started this update a few months ago, it quickly became clear we had far too many stories, case studies and examples to fit into the text.

We have presented the cases and examples according to the major themes canvassed in the paper, including big data, citizen engagement, urban mobility, the collaborative or sharing economy, resilience, climate change and the importance of place making.

Our intention is to provide as many examples as we could of the ideas we've developed around the *#wethecity* work so that, quickly and easily, those who are interested can dive a bit deeper into what cities around the world are actually doing.

The risk of even this attempt to layer in more detail is that there will be so many more stories we could have included, and the stories themselves are inevitably changing all the time. Hundreds of new examples are emerging literally every day around the world and simply keeping up is becoming something of a challenge in its own right.

So this volume of short, sharp examples and stories, with links that will take you into the detail, is our attempt to indicate something of the speed, intensity and purpose of the policy and delivery work in which the world's leading cities are now investing to give the *#wethecity* mantra – collaborate to compete – practical and often highly innovative impetus.

OVERVIEW AND CONTEXT

After *#wethecity* was digested and embraced across government and private sector, it was clear that a renewed approach to digital was needed in Sydney. We needed to move from good ideas to good implementation and there is now a groundswell of ambition across the city. It does remain apparent though – and as we will see through the exemplars discussed below – that strong metropolitan governance is a defining factor in achieving the benefits of a digital approach at the city scale. The Greater Sydney Commission is a starting point for that metropolitan approach and we must move towards good digital implementation with that momentum.

The City of Sydney, in collaboration with Arup, are currently developing a digital strategy that will modernise the delivery of Sydney 2030, the way they work as a government organisation and the way they engage with citizens and businesses. The City clearly understands that digital is a cross cutting issue in city governance and that there is the potential for new understanding about the role of government.

The strategy is being developed through participation and dialogue, with stakeholder and community engagement at its core. The strategy will offer a clear roadmap for, and understanding of, the digital investments and initiatives that will help Sydney to reach its broader digital goals. The key here is that the City already has a strong city strategy in *Sustainable Sydney 2030*. The digital aspects of its delivery will support and enhance the liveability and citizen experience for those that live, work and play in the City of Sydney. The NSW Government has established and grown an open data portal and continue to make the most of it with competitions like *apps4nsw*. Making more government data available is a key commitment of the current government and is a priority of the NSW Government ICT Strategy, but also recognised as fundamental to a successful digital economy in Sydney. A public consultation period has just concluded for the refreshed ICT Strategy.

And there is a renewed focus on cities and digital at the federal level that bodes well for moving from good ideas to good implementation. The Digital Transformation Office has been established and it's aim is to make Australia the best in the world at delivering government services. The Digital Transformation Office has set a digital service standard and is collaborating across layers of government, private sector, not for profits and academia to deliver a better service experience for the Australian public.

There is a lot happening across Australia, but we mustn't lose sight of the great work that is being done in cities around the world. We have looked at cities in the USA, Europe and Asia to arrive at some examples we think are relevant to Sydney. If you look at the highest standard around the world, what are the ideas that Sydney can take forward to support the delivery of our collective ambition?

A 21st century "city as a platform" will operate a virtuous feedback loop where the suppliers of information provide useful data to the users of information. Users will then have an opportunity to interact with the data in ways that reshape the supply of data that is provided so that new data sources and software tools evolve and connect to meet the needs of the people of Sydney. A Sydney that embraces the platform concept understands that:

- It's not always easy or straightforward for government organisations to embrace the "fail early and often" approach, but they must create the conditions in which others can.
- Open data initiatives and civic apps are not ends in themselves but important steps to empowering government and citizens.
- Platforms should not only incentivise public and private sector sharing, but also community participation.

As new and better services are offered through mobile devices and online, the need for highspeed broadband becomes more and more critical. Action is entangled with technology. The growing dependence on smart city infrastructure will create new vulnerabilities.

The built environment in Sydney can incorporate more artificial intelligence, which changes the way the city is maintained and experienced.

This should include:

- Exploring the existing fibre network to target strategic connections.
- A comprehensive public realm wireless mesh accessible to all.
- Contemporary governance with two way communication through apps, online, and data platforms.

In most global cities, rising congestion and sustainability thinking have resulted in renewed focus on public and active transport utilisation. Network expansion efforts are not the only solutions to public and active transport issues. Access to high quality transport information and integrated ticketing is just as important and that means there is an opportunity in Sydney for:

- Mobile device interfaces in the public realm: unused surfaces providing info.
- Opal card use has the potential to be extended beyond ticketing and to influence the design of transport precincts.
- Digital wayfinding beyond the development of apps can changes the patterns of movement in the City.

Smart technology is harnessed by smart governance, with better partnerships between the private and public sectors and a dramatically improved civic dialogue. Decisions are made in a more participatory and real time manner. In Sydney, the focus should be:

- Increase in data sharing across government and stakeholders.
- Foster a thriving ecosystem of developers and specific channels to use data well.
- Prioritise data release efforts according to potential value and identify city challenges that will benefit most from data analytics.
- A personalised platform for policy contributions from citizens.

Local government has an opportunity to deepen its engagement with citizens through the use of innovation and *#wethecity* thinking. One opportunity may arise from amalgamations, with the task of processing routine information outsourced from government; replaced by higher value personalised work with citizens performed by better prepared public workers, flattening hierarchies and empowering employees. The impact has the potential to be:

- A revolution in localised data for citizens when they need it.
- Co-governing, where citizens engage in creating solutions to local problems.
- Improvements in procurement – allowing councils to work jointly with the private sector to create joint, scalable solutions.

In the rest of this report, we include a number of examples of where *#wethecity* thinking can take Sydney – including cities leading the way, and projects solving city problems with smart thinking.

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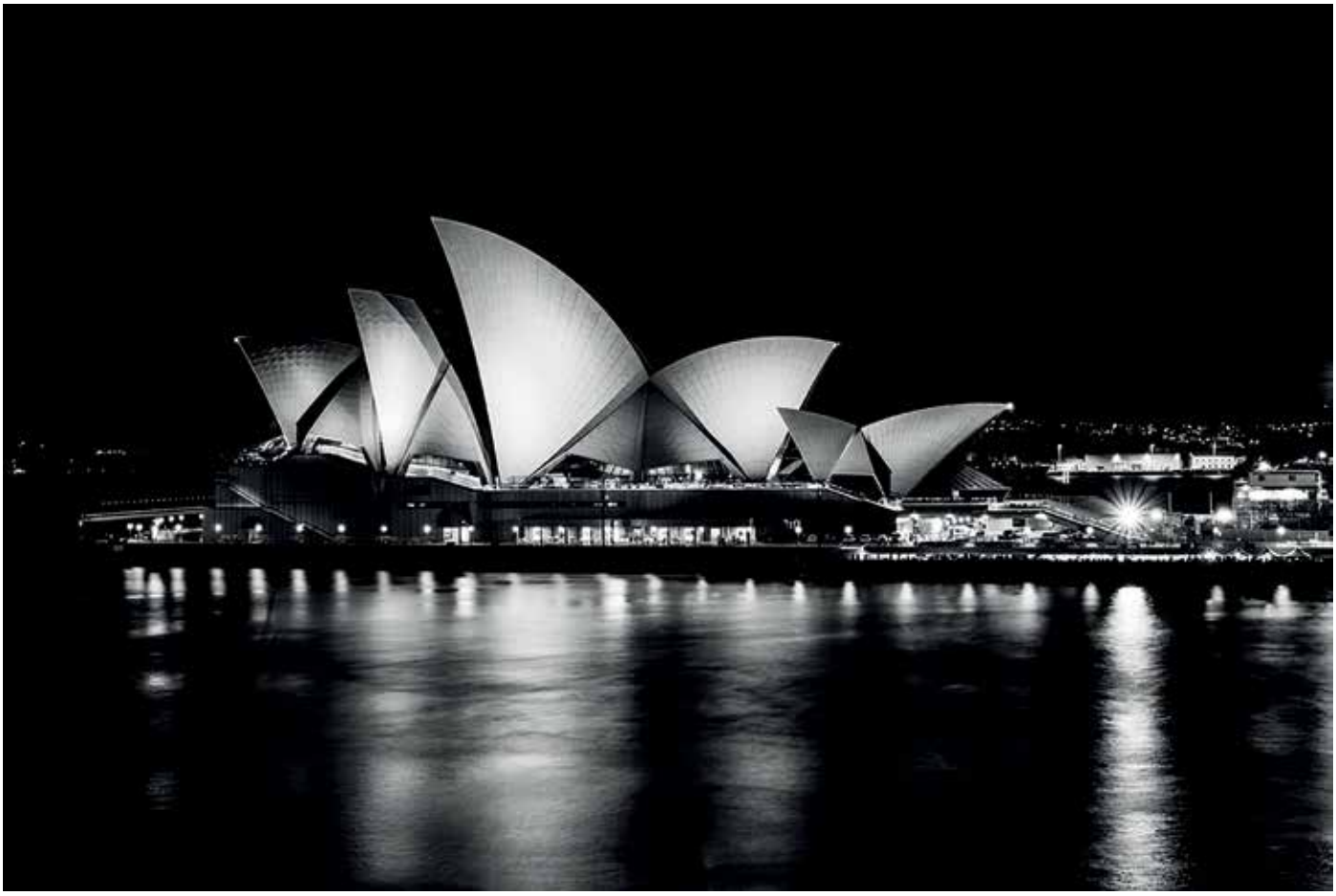


CITIES LEADING THE #WETHECITY WAY

Chicago

From early this decade, Chicago has taken a strong philosophy into their digital activities. The basis for their approach is that the power of technology is driven by the people who use and benefit from it. In 2013, the City of Chicago released their Technology Plan, which laid out a strategy to establish Chicago as a national and global centre of technological innovation.

Since then, Chicago has delivered programs aimed at digital inclusion that include the K-12 computer science education, early college STEM programming, and summer and other out-of-school technology learning opportunities for children. They have also increased free digital skills training opportunities and public computer access citywide.

At the same time the City has improved baseline infrastructure through the Chicago Broadband Challenge, which seeks to create an affordable gigabit-speed network in targeted commercial and industrial corridors, establish free wireless service in parks and public spaces, and increase accessibility and affordability of internet service in underserved residential areas across the city.

There has also been a clear focus on opening up data that relates to City programs, initiatives, and processes in a way that no city has done before and as a result Chicago has become a model in the US for government transparency.

In 2014, the City started relationships with experienced companies who were able to design, construct, implement, and manage a state-of-the-art gigabit-speed broadband network that would better serve businesses and organisations in innovation zones, or key commercial and industrial corridors throughout the city, at a cost substantially below current market offerings. To support the build-out of this network, the City will offer a variety of City assets to the selected respondent, including existing City-owned fibre and right-of-way access to freight tunnels

and sewers, as well as provision of broadband services to specified City offices. Chicago clearly sees the potential of treating digital infrastructure as a critical utility.

Chicago's success in meeting their digital ambitions in areas from government performance to education to job creation has come about because of cross-government collaboration and successful use of Chicago's broader digital ecosystem through public-private partnerships. This ecosystem includes civic volunteers that offer their technical skills and time to tackle community challenges; start-ups; non-profits; philanthropies; universities; and large corporations that bring their talents to bear through partnership with the City.

In the words of Chicago's Chief Information Officer: the commitment of this ecosystem and the unique focus on achieving citywide innovation through technology is turning Chicago into a responsive city.[2]

Some of the initiatives that are most relevant to Sydney:

Open Data Portal

The Chicago Open Data Portal provides user-friendly access to more than 600 data sets, having grown by more than 200 data sets over the last two years. On the portal, the public can browse and download data to analyse and create maps and graphs. Chicago's vibrant civic developer community uses the City's Open Data Portal to create helpful civic applications.

digital.cityofchicago.org/index.php/open-data-applications/

Array of Things

In addition to creating an open data platform, Chicago has launched an initiative to create new ways to generate and collect city data. Funded by a National Science Foundation grant to the University of Chicago's Urban Center for Computation and Data, the "Array of Things" (AoT) consists of sensors mounted on light poles throughout the city. This is the first stage of a data collection platform that will be opened up to other cities across the US. This activity is only successful because of the public wireless network and open data initiatives also pursued by the City.

Essentially, the AoT is a collection of well-designed sensors that capture and make public real-time, non-personal data about the liveability of a city. The Array of Things aims to become a crucial general-purpose, worldwide sensor data infrastructure for researchers and policymakers – big ambitions. One of the most critical aspects is that the project is open so new money from the National Science Foundation is flowing ($3m USD in fact), new collaborators from around the world are learning about it and consequently 50 devices will be installed on the streets of Chicago in early 2016, and a further 450 anticipated by 2017.

So what do the sensors measure and why are they so important? The sensors can measure the elements that contribute to quality of life in the city: climate, air quality, light, vibration, and numbers of pedestrians or cars passing the node and ambient noise for example. Each node is mounted on a pole (or building) and connected to a power source and the internet.

2 http://techplan.cityofchicago.org/2014-progress/letter-from-the-cio/

The importance, though, comes from the approach which is based in the general public's use cases for the network and creating applications relevant to everyday life in Chicago — the voice of residents is heard in the development of the AoT platform. That's important; responsive cities like Chicago listen to what the people of the city want and foster communities to own and develop these projects.

The City of Chicago, through its Chief Information Officer, Brenna Berman, has the deciding vote on a committee that is tasked with deciding whether particular new sensors are appropriate for the Array. That governance board, in turn, is advised by a technically-adept, independent cybersecurity and privacy advisory board chaired by Von Welch, director of Indiana University's Center for Applied Cybersecurity Research and Kevin Moran, Chief Technology Officer for the City of Chicago. The Array of Things will help researchers and policymakers better understand how cities function and allow Chicago to become a leader in urban sensing initiatives.

arrayofthings.github.io/

ChicagoWorksforYou

In 2012, the City of Chicago became a Code for America partner city, which resulted in an Open311 system for Chicago that helps residents track what is happening with their service requests. Through a grant from Smart Chicago the team built Chicago Service Tracker which shows each step the city takes to resolve a 311 request. This also enabled all the 311 data to be accessible on the city's data portal and subsequently the development of ChicagoWorksforYou.

The ChicagoWorksforYou site provides a ward-by-ward view of service requests from people to their government about things they want to fix. A little bit like the "Fix My Street" platforms which began in the UK a few years ago, ChicagoWorksForYou feeds data from the Open311 application to make it easier for citizens to connect to government.

The site provides map-based information about where service requests are coming from, their intensity and variability over time and how long it takes to close out the problem or issue. It attends to the basic quotidian relationship of citizens to government, which is forged in the quality and responsiveness of daily services that impact with people's lives.

chicagoworksforyou.com

CHIdeas

CHIdeas is an online community forum to engage Chicago residents and businesses in a discussion on how to improve City services, create programs and initiatives in neighborhoods, and enhance the quality of life across the city. Similar to portals used by the administration during the transition and budget processes, CHIdeas provides a structured platform to solicit ideas from the public and promote community dialogue on key issues.

CHIdeas has covered topics including minimum wage, early learning programs, library services, public art installations, emergency preparedness, and small business services. Since launching, the site has welcomed more than 11,350 unique visitors and the City is currently working to implement fifteen of the ideas submitted. New questions are added to the site regularly and residents are encouraged to check back often and suggest additional topics for discussion.

chideas.org

New York City

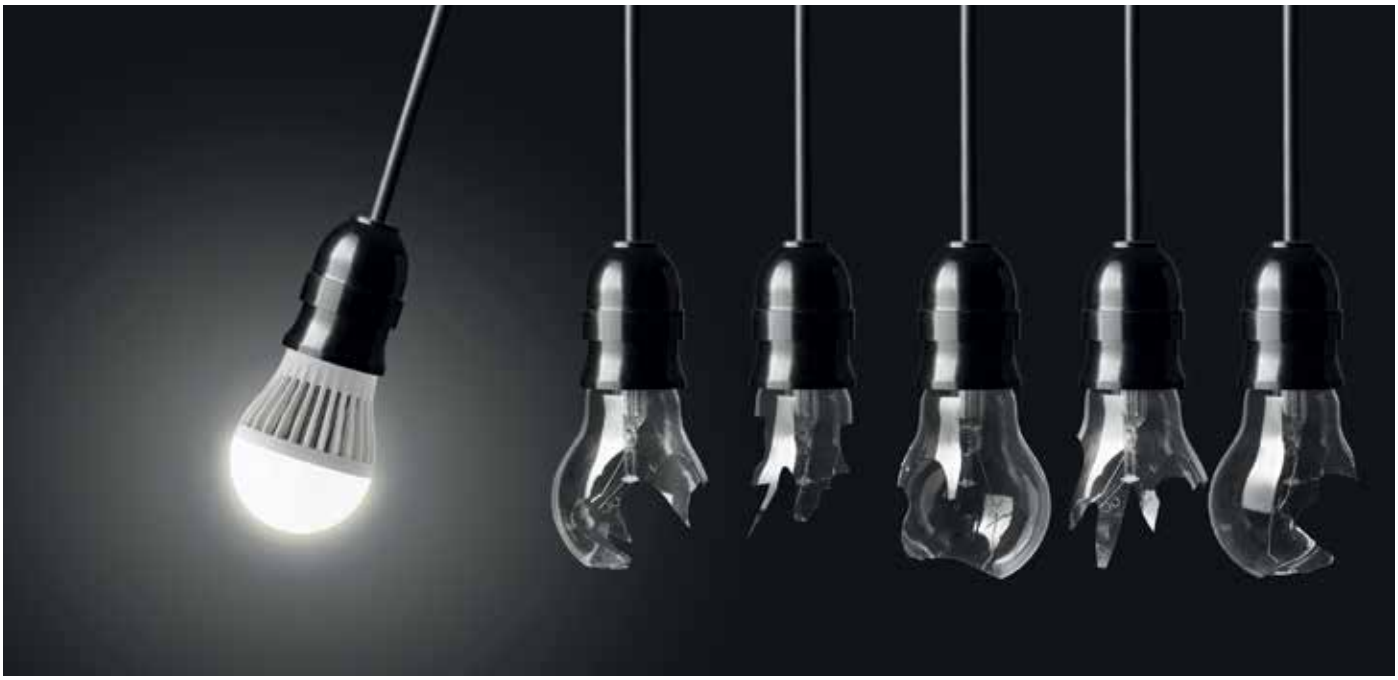
New York City Council has long been considered a world leader in metropolitan digital responses. Since 2011, the Bloomberg administration has produced three Digital Roadmaps – strategic plans to transform New York City into the world's premier digital city. What began as a niche consideration has become a force for the transformation of government.

The NYC digital reputation comes from their transparent, action-oriented and media focussed approach to digital integration and governance. Following on from the roadmap for a digital city in 2011, the City has released a refreshed and targeted digital direction: Council 2.0 – A Roadmap to Digital Inclusion and Open Government. This signalled a realisation that rather than seek innovation for its own sake, the City should focus on people before products. The realisation will likely keep New York City at the forefront of civic technology. The approach is grounded in community participation – from summits to focus and working groups to teaching and learning programs – it recognises that inclusion not only realises the social benefits of digital but makes new benefits possible too.

The Council 2.0 framework will employ social media and mobile communication to engage New Yorkers, crowdsourcing feedback on hearings, programs, and proposals. As part of the project, which will be implemented in phases, a public tech team will analyse open data, redesign the Council's website, use social media, and create easy-to-use interactive digital tools. The Council's legislative database will also be revamped and made more accessible, and reports provided to the Council by city agencies will be publicly displayed in user-friendly formats.

As with previous digital activity in New York, there is a heavy focus on better service provision using web based tools and increased transparency that comes from proper open data approaches. Again, the approach is across government and includes significant responses from education and emergency services among others. Some of the most interesting approaches in New York are coming from the Mayor's Office of Data Analytics (MODA) and the Digital.NYC.

MODA (nyc.gov/html/analytics/html/home/home.shtml) is New York City's civic intelligence centre that facilitates the aggregation and analysis of data from across City agencies and focuses on crime, public safety, and quality of life issues. The office uses analytics tools to prioritise risk more strategically, deliver services more efficiently, enforce laws more effectively and increase transparency. The work performed by MODA ranges from quick data queries to long term strategic initiatives to increase data driven decision making in government.



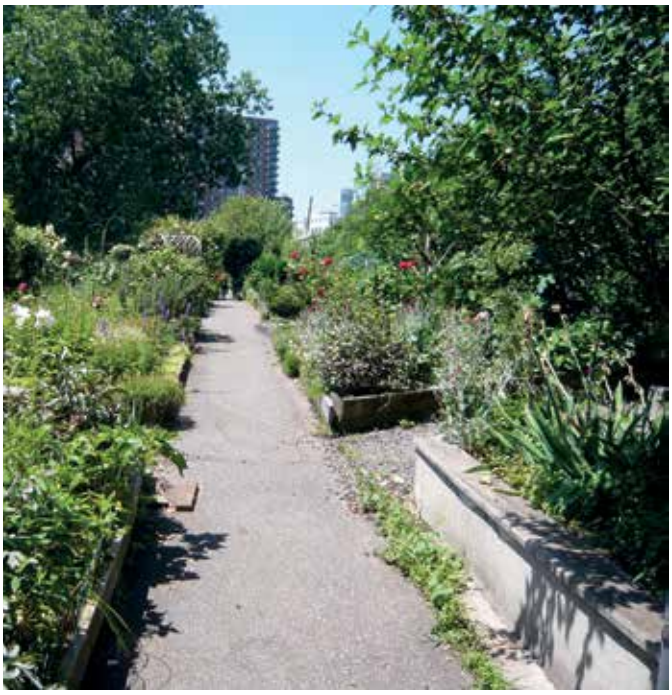
Digital.NYC (digital.nyc) is the official online hub of the New York City startup and technology ecosystem across the five boroughs. It is the result of a public private partnership between the office of the Mayor, the New York City Economic Development Corporation, IBM, Gust, and over a dozen NYC-based technology and media companies. It provides a platform for startups and investors to come together, but also the organisation of events, news and urban responses.

While the high profile data and economic development platforms are well known and often celebrated, there are in fact innovative and targeted actions that are resulting from the cross government approach.

ChangebyUS NYC

ChangebyUS NYC is "a place to share ideas, create projects, discover resources and make our city better." ChangeByUS allows individuals to either create or join a project. When we looked at the site, it offered over 490 diverse projects around food, community gardening, bike lanes and urban design. Over 120 resources are available through the site, including things like OASIS, which is an open community mapping site, the Community Clean Up program from the City and Green City Force, which prepares young people for job opportunities in the clean energy economy.

nyc.changeby.us/#start



HereHereNYC

HereHere NYC generates weekly cartoons for NYC neighbourhoods based on public data. The cartoons sum up how neighbourhoods are performing in a weekly email digest, neighbourhood-specific Twitter & Instagram feeds and with deeper data and context. HereHere is a research project from FUSE Labs and Microsoft Research with the goal of driving hyperlocal, real-world engagement to encourage civic discourse. Ultimately it makes big data, drawn from the city's non-emergency 311 system, accessible to citizens.

The logic behind the project is the value of humanising data, enabling citizens to relate to complex data analysis and results to make more effective use of data, such as anticipating and solving new problems

research.microsoft.com/en-us/news/features/herehere-031014.aspx

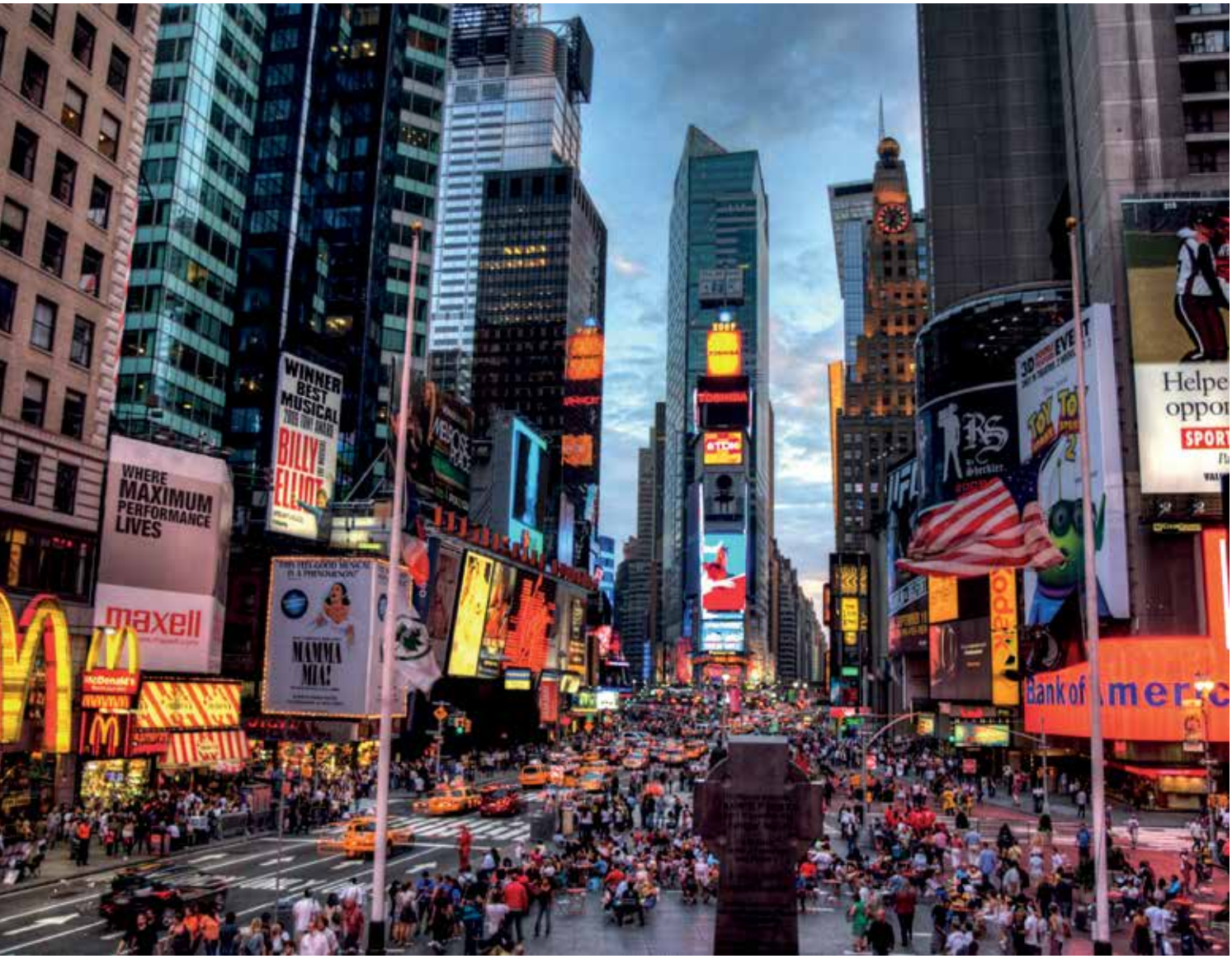
Smart Bins

New York City has partnered with Bigbelly, a waste management company, to turn garbage bins into wireless hotspots throughout the city. More than 170 "Smart Bins" have already been installed: Each bin is equipped with a chip that senses when the bin is too full or smelly, allowing the city to direct trash collectors only to the bins needing emptying.

Now, the partnership is seeking to utilise the bins as Wifi hubs and also sees the potential for the bins to be used by the government to display public service announcements.

Philadelphia has also deployed the Smart Bins throughout the city, resulting in an annual saving of $1 million for the City.

citylab.com/navigator/2015/07/new-york-city-wi-fi-trash-cans/398258/



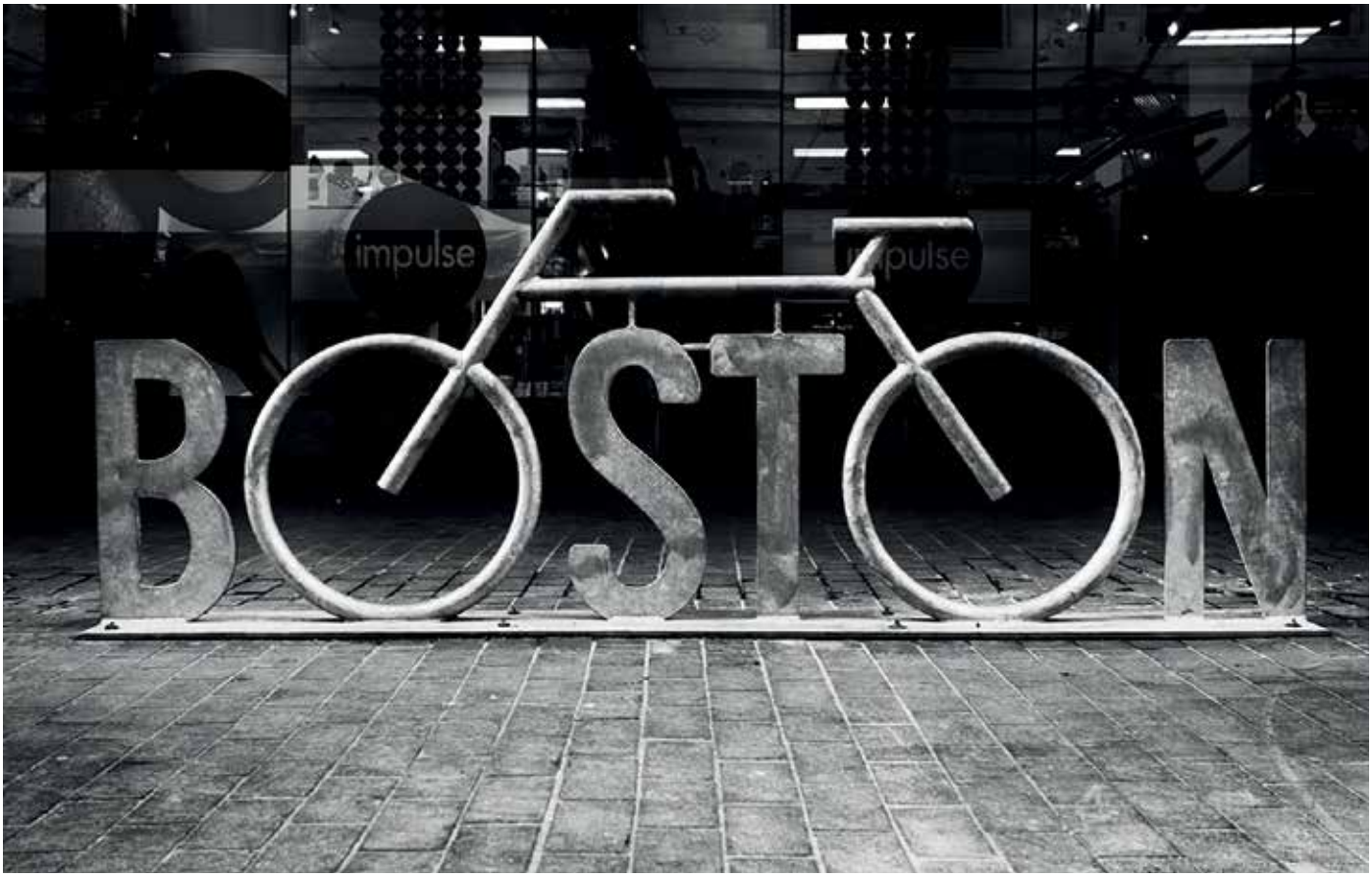
City24/7 and the Internet of Everything

City24/7 is an interactive platform that integrates information from open government programs, local businesses and citizens to provide meaningful knowledge anytime, anywhere and on any device. Cisco and LG have collaborated with City24/7, a public communications company, and the City of New York to launch an interactive platform that provides real-time information across the city. Smartscreens comprising touch, voice and audio technology, have been deployed at public transport hubs, shopping malls and event grounds to deliver hyper-local information collected from a range of open data sources in the city.

The Smart Screens can also be accessed via Wi-Fi on nearby smartphones, tablets, and laptop computers. With the motto, "Inform, Protect, Revitalise", the project not only aims to provide citizens with greater insights about their city, but also to enhance security by increasing the effectiveness of security services and encourage citizens to reengage with their communities.

Mobile computer labs to bridge the divide

New York City Housing Authority has equipped vans with laptops, printers and wireless broadband to tour deprived parts of the city, providing free use to residents to look for jobs, print resumes and complete academic assignments.



Boston

In 2013 Boston was named the USA's top digital city by the Center for Digital Government. The city hasn't slowed its digital transition with notable developments in an open government portal, a City App Showcase aimed at improving city life, digital inclusion programs like Tech Goes Home and Connecting Boston, a social media centre and the rise to critical importance of the Mayor's Office of New Urban Mechanics that fosters civic innovation.

The engine room of the transformation has been and remains the Department of Innovation and Technology who themselves have undergone a major transition from IT providers to cross departmental facilitators of solutions that efficiently and effectively engage citizens, provide greater connectivity, close the digital divide, make innovative solutions a reality, connect ideas with cash and open up government systems and processes. The importance of this cultural shift towards creator and collaborator is profound and marks one of the few digital strategies that has prospered in this way.

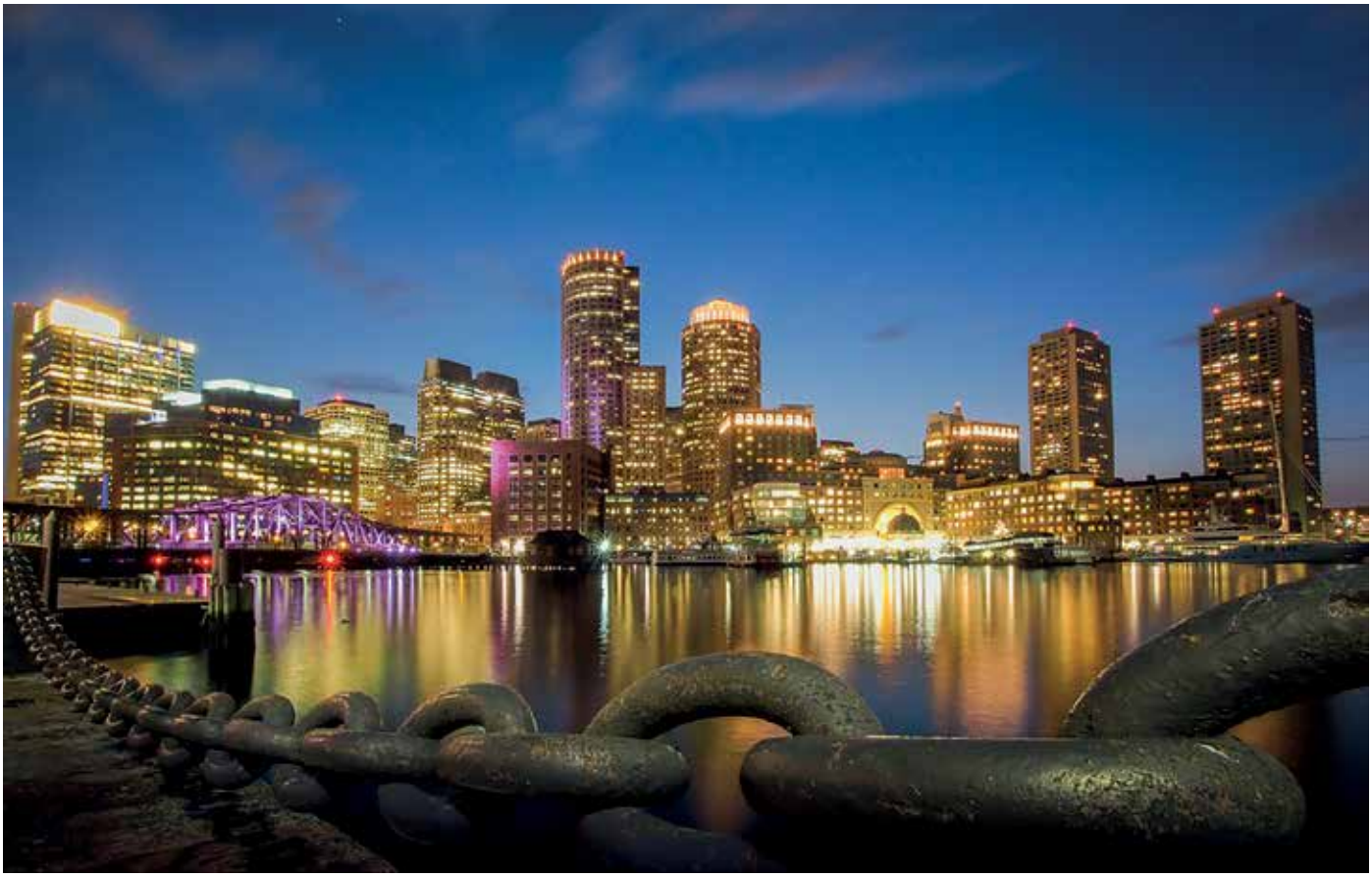
The directions followed by Boston: empowered constituents, engaged city and efficient government have produced projects and programs that lead the way in digital implementation.

Tech Goes Home

Started at the turn of the century and one of the stalwarts of Boston's digital approach, Tech Goes Home is an initiative helping to provide under-served residents the opportunities, tools, education, and access required for 21st century skills development. Underserved groups include school aged children and their parents, community members, small business owners and early childhood caregivers/teachers.

The data speaks to the impact of the program. Since 2010 home internet connections have risen to a point where 90% of households have reliable access, 85% of participants report that they are more likely to use the internet as part of their jobs and 50% of those working or looking for work said that the course either helped them in their current job or helped them find a job. Tech Goes Home started in Boston and now has a presence in Chattanooga, Las Cruces and Litchfield.

techgoeshome.org



BostonMaps

BostonMaps represents a modern platform for the City of Boston to allow access to GIS and maps for improved communication, collaboration, and decision-making. Mapping and location-based analysis are a fundamental aspect of the City's efforts to enable all City staff access to a common set of tools and resources, and help transform the way GIS is used to support businesses. BostonMaps also provides a mapping platform to support external stakeholders such as civic coders, as well as the general public.

boston.maps.arcgis.com/home
bostonopendata.boston.opendata.arcgis.com

Mayor's Office of New Urban Mechanics – Boston

Boston's Mayor's Office of New Urban Mechanics (MONUM) is a civic innovation group. The agency was formed in 2010 to pilot experiments that offer the potential to significantly improve the quality of City services. The office focuses on four major issue areas: Education, Engagement, the Streetscape and Economic Development. To design, conduct and evaluate pilot projects in these areas, MONUM builds partnerships between constituents, academics, entrepreneurs, non-profits and City staff.

The newest area of work is the economic development lab, which is focused on supporting the City's economic and neighborhood development departments in making Boston the best place for new and small businesses and keeping housing affordable for all families. Boston has been selected to participate in a $1.3m USD Bloomberg Philanthropies Innovation Team Program to start experimenting solutions to the middle-income housing challenge. Current projects include a new platform to celebrate startups and a new app to help encourage people to shop local. An interesting area of exploration is the connection of digital activities with urban design. The office is currently partnering across government to experiment with new designs in public spaces – everything from new public benches, to new platforms for public art, to new methods to engage artists.

newurbanmechanics.org

Amsterdam

Amsterdam takes a project based approach to its digital activities, but has excelled at conceptualising the city as a platform for innovation. Amsterdam Smart City (amsterdamsmartcity.com) is a collaboration between local government, businesses, research institutions and citizens. Comprising over 100 partnerships, the goal of the platform is to develop the Amsterdam Metropolitan Area into a smart city, fuelling sustainable economic growth and a high quality of life for citizens.

An array of innovations, organised under the categories of "Smart Mobility", "Smart Living", "Smart Society", "Smart Areas" and "Smart Economy", are being tested in the "urban living lab". For example, the City of Amsterdam, entrepreneurs and local shop-owners worked together to transform "Utrechtsestraat", a street in the centre of the city, into a "Climate Street" by experimenting with energy efficient technologies.

In 2013 the City of Amsterdam launched a 'design contest' for the Amsterdam Institute for Advanced Metropolitan Solutions (AMS). The aim of the contest was to solicit well thought out proposals for what such an international technological institute should be.

AMS (ams-institute.org/solutions/) aims to become an internationally leading institute where talent is educated and engineers, designers, digital engineers and natural/social scientist jointly develop and valorise interdisciplinary metropolitan solutions. The City of Amsterdam is in full support of AMS. Besides a financial contribution, Amsterdam will share city data with AMS researchers, express city/citizen challenges, allow the use of Amsterdam as a testing and piloting place for AMS, act as a launching customer for the solutions that AMS creates, provide access to its people, networks and organisations, and support AMS with its excellent brand name.

Amsterdam has put together a bottom up "smart city platform" - a combination of institutions and infrastructure that helps businesses and citizens develop and test projects. Some success stories include a sustainable platform that allows neighbours to rent their cars to each other and smart meters for 500 homes to enable the residents to meaningfully participate in reducing their energy use. All knowledge and experience is shared on the platform.

In its commentary in November 2012 as the Amsterdam platform was taking shape, *The Economist* pointed out that "cities will become smarter, but in different ways than many people expect. Whereas these top-down projects are struggling, some existing cities are getting smarter from the bottom-up. Amsterdam is considered to be a leader of the pack." Amsterdam recognises that transitioning to a platform model is an incremental process that requires engaged citizens that see tangible benefit, changes in municipal procedures and IT infrastructure and buy-in from private sector leaders. There are a wealth of projects that result from this integrated and action oriented approach, some of which are relevant to Sydney.

Smart Traffic Management

In 2008, the municipality of Amsterdam, the province of North Holland and the national government decided to collaborate to optimise traffic management. The collaboration resulted in the TrafficLink SCM system: A self-regulating system which makes it possible to combine systems from various road managers in order to improve the traffic flow in a regional area. The system comprises 2400 vehicle detector stations and 60 number plate recognition cameras. So far they have achieved a 10% decrease in time spent in congestion – an enormous saving in time and cost.

Amsterdam's Department for Infrastructure, Traffic and Transportation is globally recognised for providing access to public data that ranges from parking availability, taxi stand use and cycle path use to live traffic updates. The data has allowed developers and entrepreneurs to create apps to improve people's movement and the city's decision making.

amsterdamsmartcity.com/projects/detail/id/58/slug/smart-traffic-management

City-zen – Age of Energy

As part of the European project City-zen, UK partner, Click and Links, is developing a *serious game* called The Age of Energy, that is to be deployed in the city of Grenoble as well as Amsterdam Nieuw-West. The goal is to engage young people in these cities to save energy by raising awareness and changing behaviour through the familiar medium of gaming.

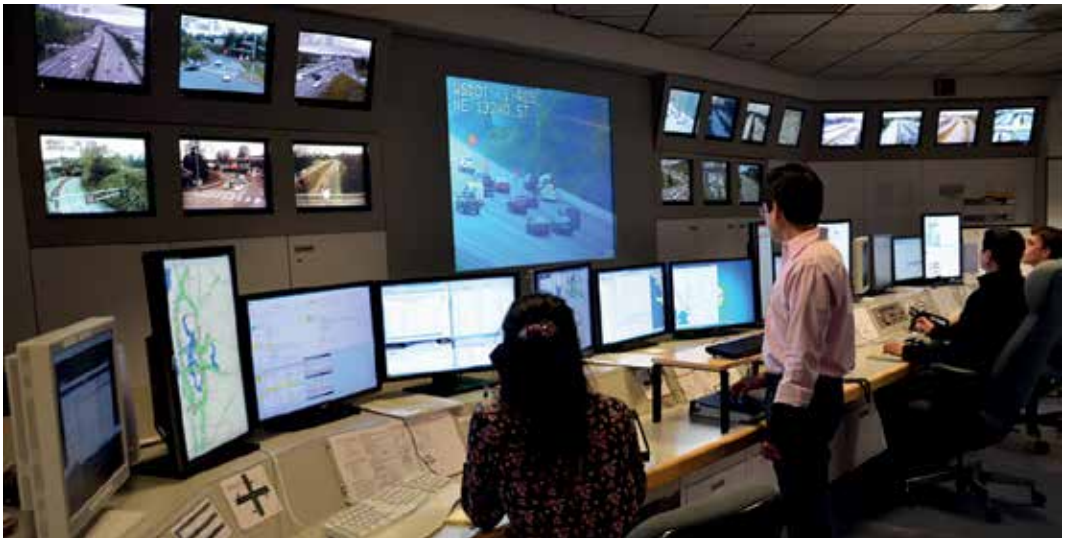
theageofenergy.com

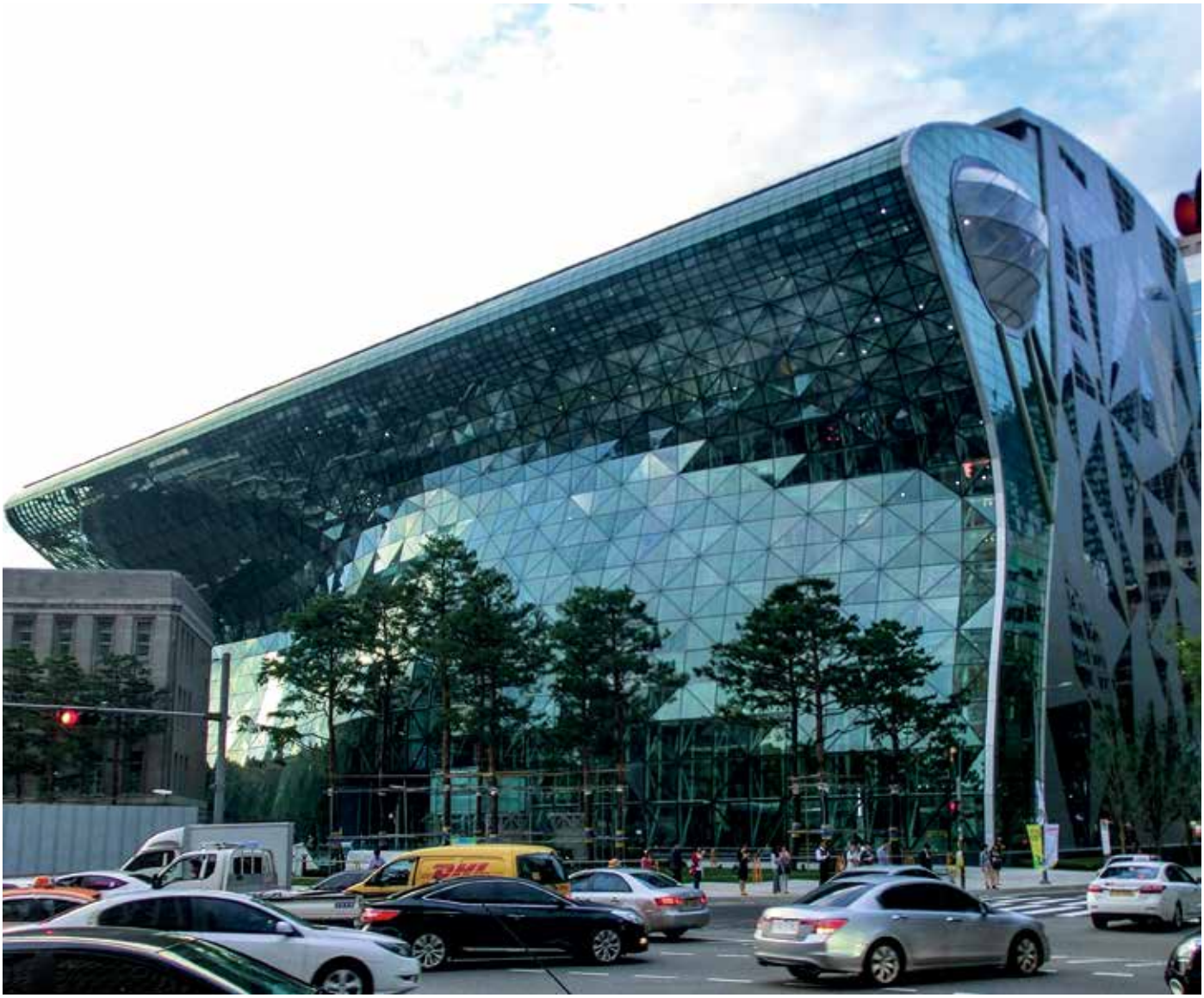
Energy storage for households

This project aspires to store renewable energy at the site of the end user, resulting in an optimal stabilisation of the energy infrastructure.

Technology is being developed that will generate and store energy on a micro level as well as distribute power between producers, consumers and distributors. Research is also being undertaken on business models for sustainable energy production. The goal is to make investments more attractive by achieving a higher ROI. This will all lead to a reduced energy price for residents in local neighbourhoods.

amsterdamsmartcity.com/projects/detail/id/61/slug/energy-storage-for-households





Seoul

Seoul has long been recognised as a global leader in e-government, having topped the Rutgers e-government rankings since 2003. It is also home of the World Cyber Games. In 2011, the Seoul Metropolitan Government released its ambitious Smart Seoul 2015 strategy, detailing plans to become the smartest, most connected city in the world. The strategy details plans to develop Seoul into one of the top 5 most competitive cities in the world and the most advanced Smart Mobile city in the world by 2015, maintaining its role as a global leader in e-government. The focus of Seoul's smart city activity is clearly on infrastructure, systems integration and increased access to skills and devices.

Some of the lofty ambitions of Seoul include the provision of free WiFi to all citizens, across every public place in the Seoul metropolitan area and to build a social network that enables two-way communication between the government and citizens. There is also a focus on cyber security with activity around building a safer city where citizens do not worry about cyber terrorism or privacy issues.

One of the more recent areas of focus has been the promotion and facilitation of sharing. An example of this is the Seoul Sharing Hub, which shows the pool of online platforms of various enterprise and organisations for sharing in order to boost the convenience for citizens in accessing information. The metropolitan government will also incubate around 20 sharing startups with office space, consultation, and subsidies.

Again, Seoul has a strong open data and transparency agenda. The Seoul Open Data Plaza facilitates the sharing of Seoul's public information with citizens in order to create business opportunities and to support technology industries. Information registered in Seoul Open Data Plaza is provided in the open API format, and is designed to enable ease of use. It is this transparency and commitment to world leading innovation that sees Seoul leading the way in contemporary service design.

The Mayor of Seoul, Park Won-soon articulates the approach well:

"The key to becoming a smart society is 'communication' on a totally different level. A smart city, for instance, involves communication between person and person, people and agencies, and citizens and municipal spaces, with human beings always taking the central position in everything. A smart city is also characterized by its unprecedented level of sharing."

e-Services

Seoul's next-generation online services system allows citizens to search for, book and pay for public services instantly. The one-stop, integrated system lists more than 150 services under categories such as education, infrastructure, cultural tourism, commodities and medical treatment. The reservation system will eventually include more than 30,000 public services offered by the Seoul Metropolitan Government and its affiliates.

Sharing City Seoul

Seoul is positioning itself to be a model city for sharing. A new, city-funded project called "Sharing City, Seoul" aims to bring the sharing economy to all Seoul citizens by expanding sharing infrastructure, promoting existing sharing enterprises, incubating sharing economy startups, utilising idle public resources, and providing more access to data and digital works. Confronted by the challenges of an ageing, dense population and pollution, Seoul's government has encouraged startups and companies to build sharing services in the city by providing resources and funding.

The government has:

- Invested US $240,000 to subsidise the expenses of 10 sharing enterprises, such as the car-sharing company SoCar, and "Kiple", an online platform for parents to exchange children's clothes.
- Incubated 20 sharing startups with office space and consultation.
- Encouraged citizens to develop their own applications by making city data accessible through the Open Data Plaza.

ourworld.unu.edu/en/is-seoul-the-next-great-sharing-city

Smart devices for all

In 2012, Seoul began distributing second-hand smart devices to low-income families and others in need. Citizens are encouraged — in particular by tax deduction in the range of $US50–100 per device — to donate their old devices when buying new ones. Following reconditioning, these are provided for free to low-income groups.

itunews.itu.int/En/4148-Smart-Seoul.note.aspx

#WETHECITY PROJECTS TO ADDRESS CITY CHALLENGES

Urban innovation

Helsinki's Smart Urban Development and city-wide Wifi

The City of Helsinki, in collaboration with businesses and citizens, is transforming the Kalasatama area into a world class model district of smart urban development. Currently, the district is home to 2,000 residents, predicted to rise to 20,000 by 2030.

The "Smart Kalasatama Living Lab" aims to inspire citizen participation and spur urban innovations.

Helsinki's City government and companies are using the area as a testing-ground for their ideas. As a result of successful pilot projects, citizens are now able to monitor their water and electricity consumption in real-time.

The City of Helsinki has also built a public Wifi network across the city, which provides high-speed internet access wherever there is a building or a space controlled by the City. The free service is touted as enabling city-wide collaboration and significantly enhancing the tourist experience.

forumvirium.fi/en/news/smart-kalasatama-initiative-enters-a-new-phase

Songdo "Future City"

Designating Songdo a "Future City", Cisco, together with city officials have sought to prioritise innovative technology and connectivity to improve efficiency and sustainability. The city is currently home to 33,000 residents, with a total of 65,000 planned for when construction finishes in 2018.

A city-wide telepresence system, comprising advanced videoconferencing technology, enables residents to access a wide range of services including remote health care and learning, as well as touch screens that enable residents to control their unit's energy use.

The collaboration aims to establish Songdo as an "eco-city", with 80% of buildings planned to be LEED-certified.

CCAP City

Kinesis, a Sydney-based urban design and technology company, assembled and led the consortium which designed and delivered the City of Sydney's Decentralised Energy Master Plan – Trigeneration. Using a unique combination of quantitative floor space data calibrated against end-use building gas and electricity data, the consortium was able to develop a detailed understanding of the City's energy demand profile.

Kinesis developed a solution for connecting:

- 65% of the City's commercial floor space;
- 50% of its retail floor space; and
- 30% of its residential floor space

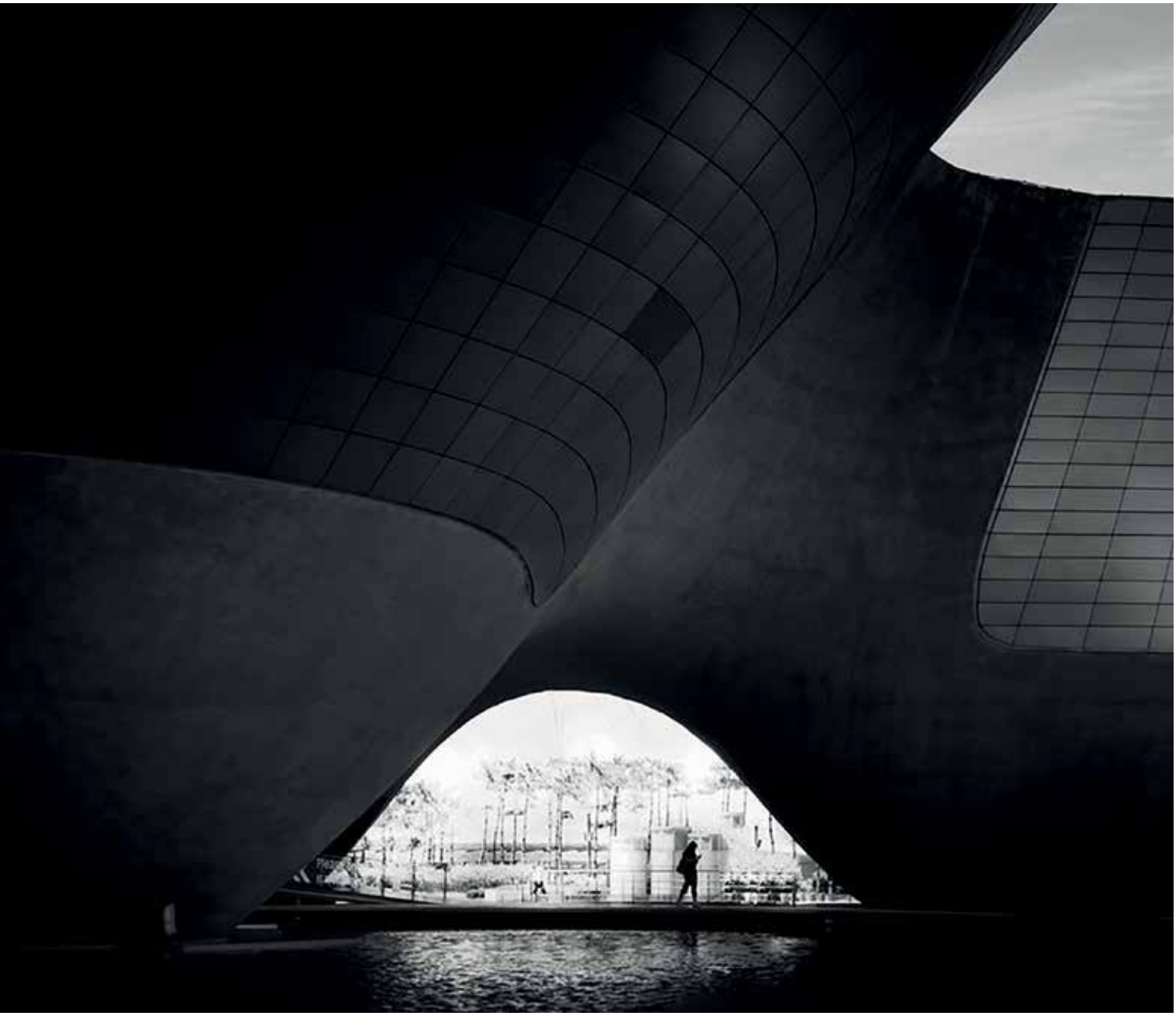
to a decentralised energy network, powered by 360 MW of trigeneration capacity, that will reduce greenhouse gas emissions across the City of Sydney LGA by between 18% and 26%.

Google: "Sidewalk Labs"

Google announced in June 2015 investment in an urban innovation company that will develop technology "at the intersection of the physical and digital worlds, with a focus on improving city life for residents, businesses and governments"

The project will target cost of living, pollution reduction, public transport and effective energy use. One of their first projects is to provide city-wide public Wifi and wayfinding through conversion of public telephone booths.

citiesofthefuture.eu/google-launched-sidewalk-labs/



What Works Cities: Partnership between Bloomberg Philanthropies and UK Behavioural Insights Team (BIT)

Behavioural insights – the "nudge" agenda – and the push for cities that are more open, democratic and responsive to citizens and new city agendas have collided in a major new program from the Behavioural Insights Team in the UK and the Bloomberg Philanthropies cities program.

The Behavioural Insights Team (BIT) has entered into a three-year partnership with Bloomberg Philanthropies on its new What Works Cities initiative. The $42 million project endeavours to build on existing innovation at the city-level by helping mayors and local leaders use data and evidence to engage the public, make government more effective and improve people's lives.

What Works Cities is the latest initiative from Bloomberg Philanthropies' Government Innovation portfolio, which promotes public sector innovation and spreads effective ideas amongst cities around the world. BIT will be one of a group of partners providing technical support and advice to cities as they enhance how they use data and evidence to make decisions. BIT will help cities conduct real-time, low-cost program evaluations to continually improve city services.

behaviouralinsights.co.uk/blogpost/bit-partner-us-cities-through-bloomberg-philanthropies%E2%80%99-what-works-cities-initiative

Data and dashboards

London Data Store

data.london.gov.uk/

With the London Data store, the dashboard concept merges with initiatives that are primarily about making more data more easily available to people who want to contribute solutions to some of the city's problems.

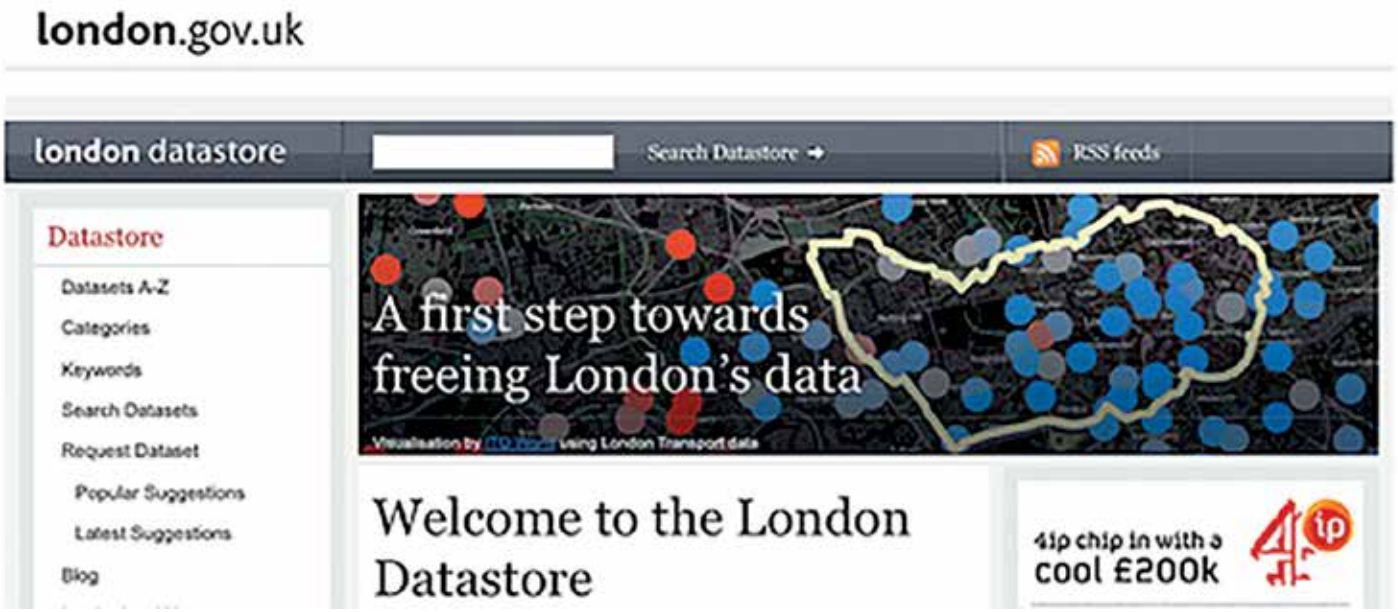
The London Datastore now has over 500 data sets available covering jobs and the economy, the environment, transport, housing, community safety and London as a world city. This combination of open data and easy, engaging access to data provides an opportunity to achieve several important outcomes. One is transparency and the capacity for people to get a more accurate, sometimes real-time, view into the way their city is performing. Another is advocacy and narrative, the ability to use data and the connections between people and communities to tell a story about a city's development and its aspirations.

Greater Sydney Commission Data Dashboard

Sydney is hard at work on a similar "dashboard" approach being developed as part of the NSW Government's plans to establish a Greater Sydney Commission (GSC). Part of the Commission's role will be to lead, and track Sydney's performance against, the new metropolitan strategy – *A Plan for Growing Sydney*.

The dashboard will become an important information and collaboration asset for the Commission. It will not only provide easy access to good quality information about the city's performance, especially in the context of the metropolitan strategy's explicit and implicit performance expectations, but it will also be a place where conversations about the city, its performance and its aspirations, will take place.

The dashboard will be part performance tool and part conversation and advocacy platform, engaging Sydney's people and communities in an open process of feedback and planning.



Philadelphia's Data Platform

Following the release of an open data policy by Mayor Ralph Nutter in 2012, the open data platform has released over 100 data sets and is engaging the community in the continuing task of finding the best way to use data to improve transparency and accountability in the context of the city's strategic priorities and programs.

cityofphiladelphia.github.io/slash-data/

Rio's Operations Centre

In Rio, an Operations Centre integrates the data and monitoring functions of 30 municipal and state agencies and corresponding utilities under one roof. The aim is to optimise city functioning, especially in the face of large-scale events, and to respond proactively to emergency situations.

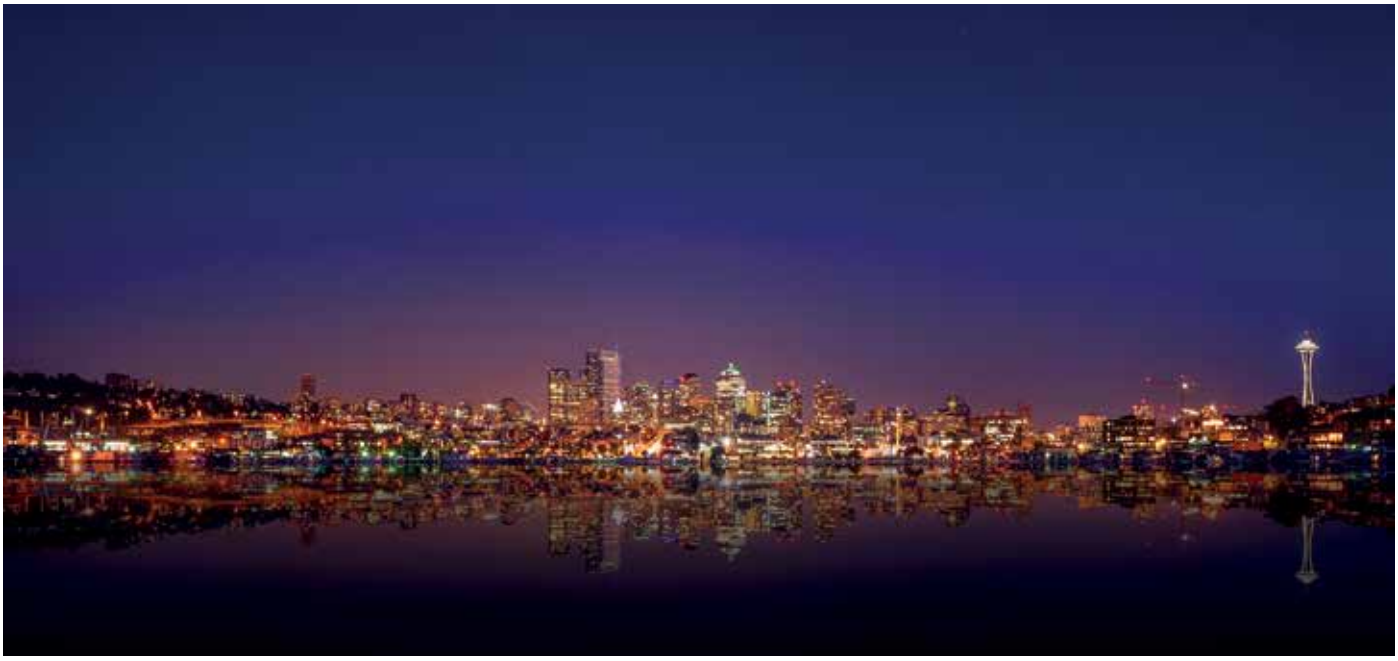
Before the centre's establishment, city departments were dispersed throughout the city, making coordination difficult. The integration of the departments into one central command centre with access to a wide array of real-time data has resulted in a 30% drop in emergency response times.

smartcitiescouncil.com/article/why-rios-citywide-control-center-has-become-world-famous

Hamburg's "City in a City"

Hamburg is engaging with the new possibilities for urban planning and management of the Internet of Everything. The city is using new forms of sensor-based management to ease congestion and parking in the city centre as well as to improve the efficiency of city lighting.

blogs.cisco.com/zzfeatured/video-showcases-hamburgs-digital-smart-city-port-connection



Urban Mobility

Seattle's "Hack the Commute" Project

In Seattle, a "hack the commute" project looked at ways to engage people directly in the task of finding better ways to design the commuting structure across the city. The hack event, held in March 2015, brought together 80 coders, designers, data analysts and entrepreneurs led by the city of Seattle and Commute Seattle.

Participants were given the context for the types of problems that need solving, along with the promise of prizes and continued city engagement for the best ideas. The event heard from academic researchers, community activists, tech entrepreneurs already developing solutions like the OneBusAway app, as well as from the city itself.

govtech.com/data/Techies-Tackle-Transportation-Troubles-at-Hack-the-Commute-Seattle.html

Mexico's Living Mobs App

The Living Mobs platform comprises a data-donating website and app. The app anonymously tracks where people go, how long they take, and the modes of transit they use to improve transport policy and commuting options for citizens.

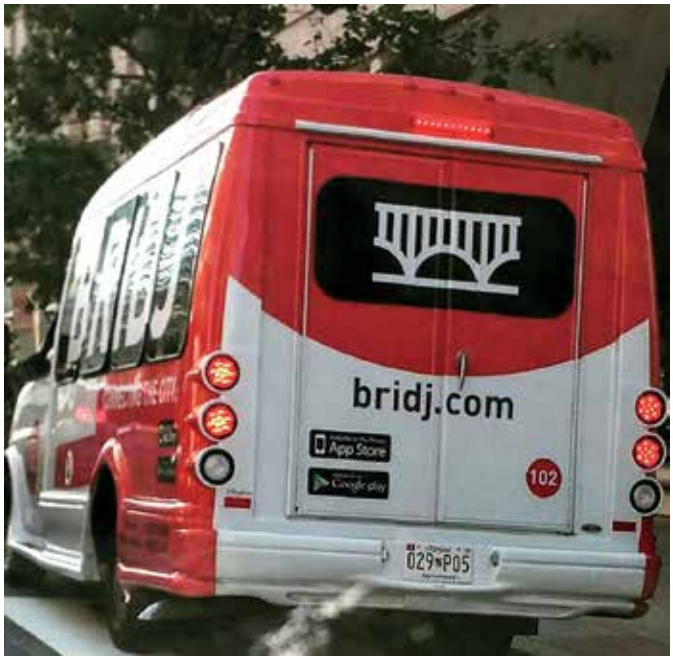
nextcity.org/daily/entry/mexico-city-government-lab-community-trust-big-data-traffic

Hong Kong's Octopus Card

According to Arthur D. Little's 2013 Urban Mobility Index, Hong Kong has the world's most mature multimodal transport system. The Octopus card is a multi-function contactless smart card that facilitates e-payment for public transport, shops, libraries, parking meters and leisure activities and enables access to residential and offices buildings. Penetration is very high with 22 million cards in use.

Sydney's Opal Card

Sydney has introduced the Opal Card over the past 12 months, which it is gradually rolling out across the city and across different modes of public transport.



Green Wave: Proposal from Deloitte in NSW

Green Wave is a proposal from Deloitte to the NSW Premier's Innovation Challenge to harness the power of networked commuters to improve mobility and journey planning in Sydney.

The proposal is for "an engaging social network of transport users that creates intelligent, rich data for predictive transport decisions both for the individual and at a state level." A bit like SMILE in Austria, Green Wave will be a route planning and modal decision making tool to help commuters work out the best – fastest, cheapest, greenest – trip to fulfil their travel needs.

Arlington County's CarFreeAtoZ

Arlington County, in conjunction with transport data consultant Conveyal, has developed CarFreeAtoZ, a multimodal trip planning platform comprising both a website and an app. Users enter their origin and destination, as well as their travel time and day, and CarFreeAtoZ generates a list of door-to-door options that integrate an array of transit modes, including buses, subways, bicycles, walking and car-shares.

Commuters are able to sort the options by total time, cost, calories burnt and walking distance. They can also see the estimated yearly cost, environmental and health benefits of choosing each non-car trip.

arlnow.com/2015/06/29/startup-monday-website-helps-commuters-go-car-free/

Micro-transit Movement in the Washington Metropolitan Region

Boston-based Bridij is seeking to fill the gap between car and bus by operating 13-person vans, equipped with Wifi, throughout the region that are commuter-directed and do not use set routes.

Commuters enter the details of their destination and are directed to pop-up mass transit stops from where the vans pick them up and drop them within a ten minute walk of their destination.

Instead of acting in competition with Washington's public transport, Bridij sees local authorities as partners and shares data with bus companies. The vans are also targeting niche sections of the population in areas without bus services.

citylab.com/commute/2015/04/how-the-microtransit-movement-is-changing-urban-mobility/391565/

Optus: Sydney Campus

Optus hosts a significant tech campus in Sydney's North West. In order to support staff to arrive quickly and safely on campus, they provide ride-share, shuttle buses from train stations, car parking, and cycling and motorcycling facilities. Through ride-sharing, staff receive reduced parking rates.

This is managed through smart employee engagement initiatives. Personalised training and pocket guides are provided to give staff information. The Optus Online Personalised Journey Planner allows employees to enter their postcodes and access and compare detailed commuting options.

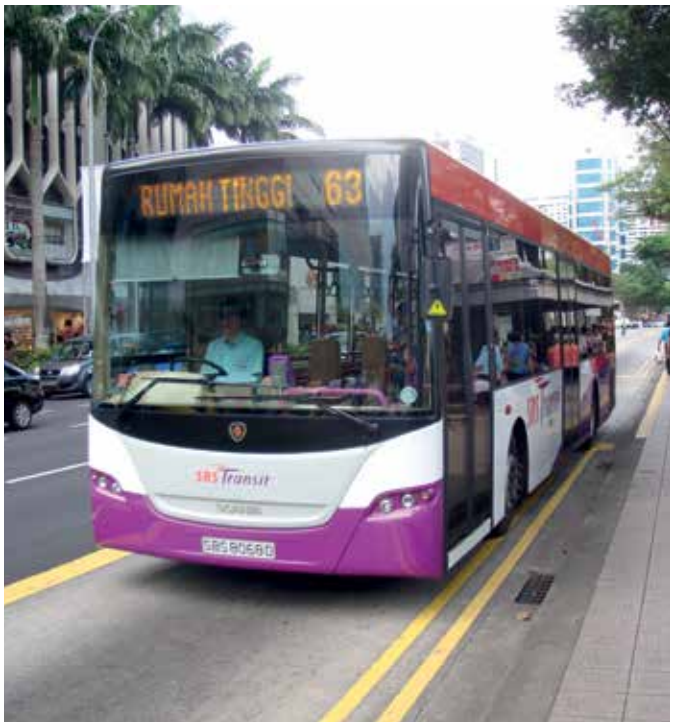
optus.com.au/about/careers/working-at-optus/workingplaces/sydney-campus

Singapore: Intelligent Transport System

Singapore has one of the highest numbers of vehicles per kilometer of road in the world. The city has implemented an Intelligent Transport System comprising a number of technologies and initiatives which feed back into the system's Operations Control Centre:

1. Electronic Road Pricing system
    - Dynamic tolling – tolls that vary according to traffic flows
    - Network of gantries erected at major entrances to the CBD area
2. Expressway Monitoring and Advisory System, alerting motorists to traffic accidents on major roads
3. A GPS system, involving sensors installed on the city taxis, which monitors and reports on traffic conditions around the city

c40.org/profiles/2013-singapore



Citizen dialogue

Ireland's "Your Country, Your Call"

In 2010, Ireland's "Your Country, Your Call" launched a global competition to source two ideas that would transform the economy by creating jobs and opportunities.

The competition asked for proposals to be submitted online in nine different categories. Over 2 months the website received 9,000 proposals which were then narrowed down to 20 semi-finalists.

The semi-finalists were each given a coach to work with to refine their ideas over a period of 6 weeks. They then presented their final ideas to a panel of judges.

The two winners were:

1. "An Opportunity for Ireland to Become a Global Media Hub"
2. "The Data Island Strategy"

They each received a prize of EUR€100,000 as well as a development fund of €500,000. Implementation teams have been established and a public-private partnership has been developed to to oversee the implementation.

cisco.com/web/strategy/docs/gov/your_country_yourcall_case_study.pdf

US's Challenge.Gov

In the US, the Challenge.Gov site creates a platform for people to submit innovative solutions to challenges presented by the government. The idea is to collide great ideas and talent to solve problems. Over 40,000 people have been involved in the site's projects since it was launched.

More than 50,000 participants have been involved in nearly 400 competitions since the platform was launched 4 years ago. Almost $90 million in prizes has been allocated for projects.

challenge.gov/list/

Philadelphia's Community PlanIt Game

Community PlanIt was an online game deployed in Jan/Feb 2013 in Philadelphia through a partnership between the City Planning Commission and the "Engagement Game Lab" at Emerson College to empower citizens to suggest ideas and to solicit feedback from citizens for the Philadelphia2035 district plan for the University/Southwest district.

Citizens won digital coins through completing challenges in the game related to improving the district. Citizens pledged the coins to local causes and the three causes which attracted the most pledges received $500 grants.

communityplanit.org/phl2035/

Data collected from the game:

datavis.communityplanit.org/phila/

Philadelphia's "Textizen"

Developed as a "Code for America" project, Textizen enables the City of Philadelphia to engage its citizens. City administrators are able to create surveys to which citizens respond quickly via text message. The innovation is particularly valuable for citizens without access to internet.

3 Steps:

1. Local government creates a survey for citizens and advertises it
2. Citizens text back with answers
3. Online dashboard allows local government to track real-time results

codeforamerica.org/apps/textizen/

Better Reykjavik, Iceland

"Better Reykjavik" is a website that enables citizens to propose, debate and vote on ideas for improving the city. The city council debates the most popular ideas from the website each month and, so far, has invested €1.9 million in the development of more than 200 citizen-proposed projects.

Madame Mayor, I have an idea, Paris

'Madame Mayor, I have an idea' is a crowdsourcing and participatory budgeting process that lets citizens propose and vote on ideas for projects in Paris. The process will allocate 500m Euros between 2014 and 2020. As a direct result of the citizen feedback on the platform (20,000 votes), the city government has decided to invest €2 million in vertical garden projects.

GovFaces, Geneva

A social network for connecting citizens with their politicians. Citizens post a question to a politician. All users upvote and downvote questions to let politicians know which should be answered first. Politicians can respond via text or video to any question.

Smart Beijing Information Platform, China

Huawei worked with the Beijing municipal government to develop an integrated cloud-based system for government services. By placing previously siloed government information into a single, unified system, the Government has reduced the cost of maintaining and providing data, while significantly boosting cross-government collaboration. This has resulted in better outcomes for citizens who access these services.

e.huawei.com/en/publications/global/ict_insights/hw_367104/success%20story/HW_367228

Collaborative Economy

Kirklees' Comoodle, UK

In the Yorkshire city of Kirklees, a major project to boost the city's collaborative or sharing economy, as a way to engage more and different people in the business of making the city a better place to live and work in, is just about to kick off.

Winner of the recent round of funding from the Bloomberg City Challenge, the Kirklees Comoodle project will receive €1 million over the next 3 years to build the sharing economy base in the city. The focus will be on projects that can be undertaken on the planning assumption "what can we do with what we've got?"

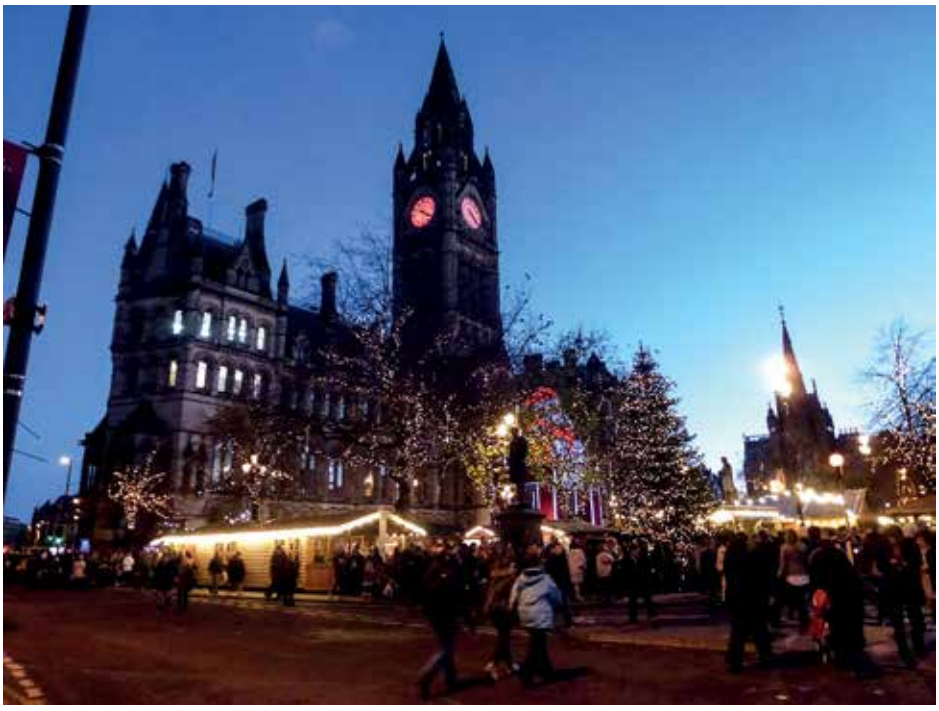
comoodle.com/about-us/

MakeManchester, UK

The City of Manchester has partnered with Spacehive, a civic crowdfunding platform, to create "MakeManchester". The platform will enable citizens to upload ideas to improve Manchester, which are then assessed according to planning regulations and risk management standards.

Once approved, the project will then seek crowdfunding investment by individuals, companies and the council through match-funding.

spacehive.com/initiatives/MakeMCR



Placemaking

Rotterdam's "The City Initiative"

In Rotterdam in 2011, the City Council ran "The City Initiative" calling on citizens to propose projects to revitalise the city, with 4 million Euros set aside for implementation.

"I Make Rotterdam", which developed plans to revitalise the central district of the city, was chosen as the winner. It brought together four initiatives:

The Luchstingel – a 390m wooden pedestrian bridge that connects the centre and north of Rotterdam; the bridge has turned out to be important because it connects the city by way of a safe pedestrian path and encourages economic development in a much needed area of Rotterdam.

DakAkker – a rooftop garden and pavilion that can be rented, with produce from the garden is used by local restaurants.

Station Hofplein – the rooftop of the station, which is the landing space from the bridge, has been transformed into a public place, offering space for small-scale initiatives from local entrepreneurs.

Park Pompenburg – which used to be a storage site and now offers a public park, picnic area and a sports area.

A large part of the initiative was crowdfunded: individuals/ organisations could fund a plank or section of the bridge or another element of the initiative in exchange for being able to customize it with their name or message to the city

luchtsingel.org/en

Pittsburgh's "Envision Downtown"

Announced in 2015, "Envision Downtown" is a public-private partnership created by the City of Pittsburgh and the Pittsburgh Downtown Partnership to shape a 21st century vision for the sustainable and efficient development of a "Downtown for all".

Mayor Bill Peduto intends to pursue a "complete streets" strategy for Downtown Pittsburgh by investing $35 million over the next five years in place-making and transportation projects. The strategy emphasises the power of open data, with a community decision-making process slated to determine the most effective and beneficial use of funding over the five years.

envisiondowntown.com

The Committee for Sydney

Issues Paper 10 is co-authored by **Martin Stewart-Weeks** and **Dr Tim Williams**, with additional research from **Katherine Tobias** and **Aaron Mostafa**.

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Dr Tim Williams is CEO of the Committee for Sydney and has written extensively as a consultant on the digital economy. Before coming to Australia he was special advisor on cities and urban regeneration to a number of UK Cabinet Ministers and advised the Mayor of London on housing.

Additionally, we would like to thank those who have contributed to the development of this paper and for their advice and counsel on many of the ideas we've been developing. In particular, we acknowledge:
- Arup
- Elton Consulting

Our thanks for members who contributed case studies:

Arup
Cisco
City of Sydney
Deloitte
Huawei
Kinesis
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Optus

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"The Committe for Sydney is a fantastic body adding to public debate in the city. It is exactly the organisation it needs to be – engaged, constructive and challenging.

The Hon. Mike Baird MP, NSW Premier